

ABSTRACT

Cambered vanes of this invention are constructed for use within a vaned turbocharger and comprise an inner airfoil surface oriented adjacent a turbine wheel, and an outer airfoil surface oriented opposite the inner airfoil surface. The inner and outer airfoil surfaces define a vane airfoil thickness. A cambered vane leading edge or nose is positioned along a first inner and outer airfoil surface junction, and a vane trailing edge positioned along a second inner and outer surface junction. The vane inner and outer airfoil surfaces are specially configured to provide a vane camberline having a curved section. Specifically, the vane camberline curved section has a measure of curvature is defined within a degree of tolerance by a vane placement or pivot diameter, as generally measured between diametrically opposed vanes mounted in the turbocharger, for providing improved gas flow distribution, thereby increasing the effective operating range of the turbocharger.